1771

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To:	GROUP 1771	**From:**	Godfried R. Akorli
Company:	USPTO	**Div/Dept.:**	Patent Department
Fax:	703-872-9306	**Fax:**	412-777-2612
Phone:		**Phone:**	412-777-3061

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APPLICATION OF: BERNHARD JANSEN ET AL
GROUP NO.: 1771
SERIAL NUMBER: 09/868,211
FILED: JUNE 14, 2001

Please find a copy of an Appeal Brief, Letter, Amendment, and Petition for Extension of Time.

If you have any questions please call.

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NOTICE OF CONFIDENTIALITY

PATENT APPLICATION
M0-6368
LeA 33,233

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN APPLICATION OF	
BERNHARD JANSEN ET AL	GROUP NO.: 1771
SERIAL NO.: 09/868,211	
FILED: JUNE 14, 2001	EXAMINER: L. SALVATORE
TITLE: WOOL WITH ANTIFELT FINISH AND METHOD FOR PROVIDING AN ANTIFELT FINISH	

LETTER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 2231-1450

Sir:

Enclosed herewith is an Appeal Brief in the matter of the subject Appeal. Please charge the fee for filing the Brief, $330.00, to our Deposit Account Number **50-2527.** A separate Petition for Extension of Time is being submitted herewith.

Respectfully submitted

By _____
Godfried R. Akorli
Attorney for Appellants
Reg. No. 28,779

BAYER CHEMICALS CORPORATION
100 Bayer Road
Pittsburgh, PA 15205-9741
Phone: (412) 777-3061
FACSIMILE PHONE NUMBER:
(412) 777-3902
s:/sr/akorli/gra0732

CERTIFICATION OF FACSIMILE TRANSMISSION

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Godfried R. Akorli, Reg. No. 28,779
Type or print name of person signing certification

Signature

June 28, 2004
Date

PATENT APPLICATION
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LeA 33,233

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APPLICATION OF	
BERNHARD JANSEN ET AL	GROUP NO.: 1771
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APPEAL BRIEF

Commissioner for Patents
Alexandria, VA 22313-1450
Sir:

Dear Sir,

This is an appeal from the Office Action dated September 25, 2003 made final, rejecting Claims 16 and 18-28. A full statement of Claims 16 and 18-28, which are being appealed herein, is attached hereto as Appendix 1. A separate Petition for Extension of Time is being submitted herewith.

CERTIFICATION OF FACSIMILE TRANSMISSION

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I. REAL PARTY IN INTEREST

The real party in interest for the present appeal is the assignee Bayer AG.

II. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of other appeals or interferences that will directly affect or be directly affected by or having a bearing on the present appeal.

III. STATUS OF CLAIMS

The above-referenced application was filed with Claims 1-13, which were preliminarily amended by canceling Claims 1-13 and replacing them with Claims 14-27. In the Amendment of June 18, 2003, Claims 14, 15 and 17 were cancelled and Claim 28 was added. Remaining in the application are Claims 16, and 18- 28 which are the subject claims of this appeal.

IV. STATUS OF AMENDMENTS

Appellants have elected not to file an amendment after final, given that the issues in the case have been joined.

V. SUMMARY OF THE INVENTION

The present invention relates to a non-felting wool obtained by a process comprising exposing wool to:

(a) a plasma in a pretreatment, followed by

(b) optionally, an aqueous dispersion of self-dispersing isocyanates.

(c) a softener, and

(d) optionally, an antislip agent.

VI. ISSUES

Issue 1

Whether the Examiner erred in concluding that Claims 16, 18-23 and 25-28 are unpatentable under 35 U.S.C. 103(a) over Dybdal et al., WO 96/19611 and Carroll, US 3,847,543 and further in view of Laas et al., US 5,731,396 where the record lacks any motivation for modifying the references to the claims, in that:

the primary reference admittedly fails to teach or suggest the use of plasma treatment followed by the claim specified self-dispersing isocyanates, where the secondary reference, Carroll teaches a different type of isocyanate which is not suggestive of the claim specified self-dispersing isocyanates, and the secondary reference Laas et al is of a teaching which is unrelated to preparation of non-felt wool.

Issue 2

Whether the Examiner erred in concluding that Claim 24 is unpatentable under 35 U.S.C. 103(a) over Dybdal et al., WO 96/19611, in view of Laas et al., US 5,731,396 as applied to Claim 17 and further in view of Vogel et al, US 5,047,065 where the record lacks any motivation for modifying the references to the claims, in that:
the primary reference admittedly fails to teach or suggest the use of plasma treatment followed by the claim specified self-dispersing isocyanates, and the secondary references, Laas et al and Vogel, are teachings which are unrelated to preparation of non-felt wool.

VII. GROUPING OF CLAIMS

All the claims in the application are placed in the same grouping.

VIII. ARGUMENTS

Answer to Issue 1

The Examiner erred in concluding that Claims 16, 18-23 and 25-28 are unpatentable under 35 U.S.C. 103(a) over Dybdal et al., WO 96/19611 and Carroll, US 3,847,543 and further in view of Laas et al., US 5,731,396 because the record lacks any motivation for modifying the references to the claims, in that (a) the primary reference admittedly fails to teach or suggest the use of plasma treatment followed by the claim specified self-dispersing isocyanates, (b) the secondary reference, Carroll, teaches a different type of isocyanate which is not suggestive of the claim specified self-dispersing isocyanates, and (c) the secondary reference, Laas et al, is of a teaching which is unrelated to preparation of non-felt wool.

The rejection of Claims 14-23 and 25-27 is based on the grounds that: "...Dybdal et al., discloses method of producing wool having improved shrink resistance, anti-felting, whiteness, dyeability, and softness properties (Abstract). The method comprises exposing the wool fibers to plasma treatment and a proteolytic enzyme (Abstract). The wool fibers may include wool from sheep, camel, rabbit, goat and lama,(i.e., merino or shetland wool) (Page 9, 34-37). Dybdal et al., further teaches adding softeners either simultaneous with the enzyme treatment or after the plasma treatment. Suitable softeners include organic cationic or silicone based products (Page 16, 20-37)."

Dybdal et al., fails to teach adding an aqueous dispersion of isocyanates, however, the patent issued to Carroll discloses treating wool substrates with polyisocyanate solutions to impart reduce shrinkage (Abstract and Column 1, 24-30).

Carroll does not explicitly teach the claimed polyisocyanate composition, however, the patent issued to Laas et al., discloses a water dispersible polyisocyanate mixture suitable for use as textile coatings (Column 8, 9-13). The isocyanate mixture comprises an isocyanate group content (calculated as NCO molecular weight 42) of 7.0 to 21.5 weight percent, an ethylene oxide content (calculated as molecular weight 44) of 5 to 25 weight percent and an average NCO functionality of 1.8 to 4.6 (Column 3, 34- Column 4, 17). The polyisocyanates are selected from the group consisting of aliphatically or cycloaliphatically having NCO functionality from 2.1 to 5.0 (Column 4, 27-34). The number of ethylene oxide units is more than 10 (Column 6, 49-50). The amount of ethylene radicals, based on the total quantity of alkylene radicals is at least 80 mole percent (Column 5, 15-17).

With regard to Claim 26, since the solutions of Laas et al are aqueous it is reasonable to presume that the solution would be applied to wool by any known method in the art such as dipping, spraying, rolling or padding.

Therefore, motivated to increase the shrink resistance of wool textiles it would have been obvious to one having ordinary skill in the art to coat the wool substrate of Dybdal et al., with the polyisocyanate binder mixture of Laas et al. Motivation to specifically treat wool substrates with isocyanate is found in the explicit teachings of Carroll."

It is well established that in the determination obviousness, it is necessary to ascertain in the first place whether the reference teachings explicitly or implicitly would appear to be sufficient to the skilled artisan to make the proposed substitution, combination or other modifications, In re Linter 173 USPQ 560 (CCPA 1972). "The test for an implicit showing is what the teachings, knowledge of the skilled artisan, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art, In re Kotzab 55 USPQ 2d 1313 (Fed. Cir. 2000)."

In this case, the record is devoid of any teaching or suggestion for modifying the primary reference to a claim further comprising the use of self-dispersing isocyanates or to a claim comprising the use of proteolytic enzymes with self-dispersible isocyanates. The references are discussed and distinguished hereunder.

Dybal et al

Dybdal et al. discloses a process for preparing wool with improved properties by
(1) treating the wool with a plasma and
(2) subjecting the wool to a treatment with a proteolytic enzyme.

To be sure, the treatment of wool with plasma to reduce the felting tendency is generally known from prior art. As such, read for what it stands, Dybdal et al.'s contribution lies in its process step (2) comprising contacting wool with the proteolytic enzyme to impart certain improved properties of the wool. These improved properties are listed on page 3, lines 22 - 27 and include a further reduction of the felting tendency (additional to the reduction obtainable by the plasma treatment) and also an improvement of softness. Additional softening is obtained by a further step comprising contacting the wool with a softener.

This process differs from the process of the present invention with particular reference to step (2). While Dybdal et al. mandatorily contacts the wool with the proteolytic enzyme, the present invention mandatorily comprises the treatment of the wool with the self-dispersing isocyanates.

Lacking from Dybdal et al. is any basis for substituting treatment of the wool with proteolytic enzyme with treatment with self-dispersing isocyanates. The Examiner clearly acknowledges this difference. The shortcoming of Dybal is uncured by the secondary references which are discussed more fully hereunder.

Carroll

At the outset, Appellants note that the record is devoid of a basis for substituting for Dybal's proteolytic enzymes with self-dispersible isocyanates. Assuming arguendo that Carroll provides such a basis, the substitution of Carroll's two-component system of isocyanates and polyols would not have led to claims with a reasonable expectation of success.

Carroll discloses impregnating a textile material in order to render the textile less susceptible to relaxation and felting shrinkage, using an aqueous dispersion of two components isocyanate system, i.e., an aliphatic polyisocyanate and a polyglycol having 2-4 hydroxyl groups per molecule. Use of the two-component system does not teach or suggest use of a self-dispersing isocyanate as recited by the claims.

The difference here is better appreciated when one recognizes that in the use of a two-component system, the components are not reacted prior to the application thereof. Once applied to the fiber, the polyisocyanates react with the polyglycol with a formation of a polymeric network on the fiber surface, to produce urethane bridging groups between monomeric repeating units. Carroll's dispersion fiber has the disadvantage that the two components are not very soluble/dispersible in water. As such, Carroll's dispersion requires additional emulsifying agent and an organic solvent (see Carroll, column 2, lines 43-60).

In contrast, in the present invention, the wool is contacted with a dispersion of isocyanates, which have already been prepared by reacting a polyisocyanates (I)

with a monofunctional hydroxy-component (II). Due to such mono-functionality, the resulting isocyanates do not form high molecular weight polymers and, therefore, possess the advantage of being self-dispersing without any addition of emulsifying agent or organic solvent. They can be readily handled and are stable for many months in storage. Once applied to the fiber surface, the isocyanate end groups react with water with the formation of urea-bridging groups.

From the foregoing, it is quite clear that Carroll's mixtures of polyisocyanates and polyols are different from and do not suggest the specified self-dispersing isocyanates of the present invention. Nothing of record teaches or suggests the use of the self-dispersing isocyanates.

Laas et al.

With the intention of closing the still existing gap between the present invention and the combination of Dybdal et al. and Carroll, the Examiner further cited Laas et al. Laas et al. discloses self-dispersing but structurally different isocyanates for use in coating composition. As shown in Laas et al., column 3, lines 35-64, these polyisocyanates mandatorily comprise opened ε-caprolactone repeating units (CO-$(CH_2)_5$-C-O-) in polyester chains. The presence of such ε-caprolactone repeating units obviously allows the use of a lower number of polyethyleneoxide repeating units in the polyisocyanates without decreasing the stability to sedimentation.

Laas et al. is not combinable with Dybdal et al., in view of Carroll, given that the disclosure of Laas et al is in a completely different field of application. Namely, Laas et al.'s self-dispersing isocyanates are intended to serve as starting molecules in the preparation of polyurethanes which are used particularly in 2K-PUR coating compositions (see column 1, lines 6-26, column 2, lines 56-65). Laas et al. does not refer at all to the treatment of wool and the object underlying the present invention, which is providing wool having an improved antifelt finish.

Assuming arguendo that Lass et al. is combinable, such a combination would not have led to present invention with a reasonable expectation of success. For, Laas et al. does not give any hint or suggestion that its very specific self-dispersing

isocyanates (differing from the ones of the present invention) might have the property of providing wool with an antifelt finish.

It is timely to take issue with the Examiner's suggestion at page 4, lines 12-14 of the Final Office Action that Appellants' "isocyanate is claimed in terms of NCO content and functionality, not individual reactive constituents". In this regard, Appellants direct the Board's attention to the fact that the Claim 28 (b(I) and)(II) recites the reactive constituents which are not taught or suggested by the cited references.

Answer to Issue 2

The Examiner erred in concluding that Claim 24 is unpatentable under 35 U.S.C. 103(a) over Dybdal et al., in view of Laas et al., US 5,731,396 as applied to Claim 17 and further in view of Vogel et al, US 5,047,065 where the record lacks any motivation for modifying the references to the claims, in that: the primary reference admittedly fails to teach or suggest the use of plasma treatment followed by the claim specified self-dispersing isocyanates, and the secondary references Laas et al and Vogel are of teachings which are unrelated to preparation of non-felt wool.

Similarly to Laas et al., the disclosure of Vogel has nothing to do with treating wool in order to accomplish an anti-felt finishing of such wool. The aqueous finishing agent used in Vogel to provide a softening effect to fibrous materials comprises various very specific components (see Claim 1). The only thing in common with the present invention resides in the fact that such finishing agent serves as a softening agent. Nonetheless, there was no motivation for any artisan to even consider Vogel as being combinable with Dybdal et al. Assuming arguendo that the skilled artisan would have considered Vogel combinable, such combination would not have cured the various deficiencies of Dybdal et al. or the secondary references, Carroll, or Laas et al.

Net: The deficiency of the primary reference, Dybdal et al., in failing to employ the claim specified self-dispersing isocyanates is not cured by Carroll, since there is no basis in either reference for substituting for Dybdal et al.'s proteolytic

enzymes. The lack of basis is not cured by Laas et al. which relates to the use of different isocyanates in a different field of invention. Similarly, the lack of basis is not cured by Vogel relating to softening of substrates as opposed the anti-felt treatment.

In view of the foregoing, Appellants submit that the cited references do provide sufficient evidence supporting a prima facie case of obviousness. Appellants therefore pray for the reversal of the Examiner and allowance of the claims.

Respectfully submitted,

By _____
Godfried R. Akorli
Attorney for Appellants
Reg. No. 28,779

Bayer Chemicals Corporation
100 Bayer Road
Pittsburgh, Pennsylvania 15205-9741
(412) 777-3061
FACSIMILE PHONE NUMBER:
(412) 777-2612
s:/sr/akorli/gra0730

APPENDIX: CLAIMS ON APPEAL

1-15 (Cancelled)

16. (Currently Amended) A nonfelting wool according to Claim ~~14~~ 28 wherein the wool is raw wool obtained after a raw wool scour, dyed or undyed wool slubbing, or a dyed or undyed wool yarn, knit, or cloth.

17. (Cancelled)

18. (Currently Amended) A nonfelting wool according to Claim ~~17~~ 28 wherein the organic polyisocyanate is a unmodified aliphatic, cycloaliphatic, araliphatic, or aromatic isocyanate having an average NCO functionality of 1.8 to 4.2.

19. (Currently Amended) A nonfelting wool according to Claim ~~17~~ 28 wherein the polyalkylene oxide alcohol, amine, and/or thiol contains on average 6 to 60 alkylene oxide units per molecule.

20. (Previously Presented) A nonfelting wool according to Claim 19 wherein the polyalkylene oxide alcohol, amine, and/or thiol is a polyethylene oxide/propylene oxide alcohol, amine, and/or thiol.

21. (Previously Presented) A nonfelting wool according to Claim 19 wherein the polyethylene oxide/propylene oxide alcohol, amine, and/or thiol contains not less than 60 mol% of ethylene oxide units, based on the sum total of ethylene oxide and propylene oxide units.

22. (Currently Amended) A nonfelting wool according to Claim ~~17~~ 28 wherein the NCO-reactive compound is

(i) a hydroxyl- or amino-functional compound having tertiary amino groups,
(ii) a hydroxyl- or amino-functional compound having carboxyl or sulphonic acid groups,

(iii) a hydroxyl- or amino-functional compound having carboxylate or sulphonate groups for which the counterions are metal cations of the alkali metal or alkaline earth metal group or ammonium ions, or

(iv) a hydroxyl- or amino-functional compound having ammonium groups obtained from the tertiary amino groups of the compounds (i) by alkylation or protonation.

23. (Currently Amended) A nonfelting wool according to Claim ~~17~~ 28 wherein the softener softeners is a fatty acid amide, ester quat, quaternary fatty acid amide, betaine, fatty acid sarcoside, aminosilicone, polyethylene wax emulsion or silicone emulsion.

24. (Currently Amended) A nonfelting wool according to Claim ~~17~~ 28 wherein the antislip agent is an anionic or cationic silica sol, blocked isocyanate resin, hydrophilicized isocyanate resin, polyacrylate, or polyvinyl alcohol.

25. (Previously Presented) A process for the antifelt finishing of wool comprising exposing wool to

(a) a plasma in a pretreatment, followed by

(b) optionally, an aqueous dispersion of self-dispersing isocyanates,

(c) a softener, and

(d) optionally, an antislip agent.

26. (Previously Presented) A process for the antifelt finishing of wool according to Claim 25 wherein exposure to the aqueous dispersion of self-dispersing isocyanates is effected either batchwise in an exhaust process or continuously by dipping, roll application, padding, application of a mist or spray, or backwasher application.

27. (Previously Presented) A process for the antifelt finishing of wool according to Claim 25 wherein exposure to the aqueous dispersion of self-dispersing isocyanates and the softener is effected are carried out together and are followed by exposure to the antislip agent.

28. (Previously Presented) A nonfelting wool obtained by a process comprising exposing wool to:

(a) a plasma in a pretreatment, followed by

(b) an aqueous dispersion of self-dispersing isocyanates, wherein the self-dispersing isocyanate has an isocyanate content of 1 to 25% by weight, calculated as NCO (having a molecular weight of 42 g/mol), and is obtained by reaction of:

organic polyisocyanates having an average NCO functionality of 1.8 to 4.2

with

(II) polyalkylene oxide alcohols, amines, and/or thiols of the formula (1)

R^1R^2N-(CHX-CHY-O)^n-CHX-CHY-ZH (1)

wherein

n is 3 to 70,

X and Y are hydrogen or methyl, with the proviso that when one of X and Y is methyl the other of X and Y must be hydrogen,

R^1 and R^2 are independently straight-chain or branched C_1-C_6-alkyl radicals or straight-chain or branched C_1-C_6-acyl radicals, with the proviso that if R^1 is a straight-chain or branched C_1-C_6-acyl radical, R^2 can also be hydrogen, or R^1 and R^2 may combine to form a -(CH2)m- alkylene radical where m is 4, 5, 6, or 7, wherein one or two CH_2 groups can be replaced by 0 and/or NH and/or one or two CH2 groups can be substituted by methyl, and Z is 0, S, or NH,

(c) a softener, and

(d) optionally, an antislip agent.